

Work Order ID 145189

May 04, 2016 10:24:52 AM

R.H.

145189

Step Adaption kit added

Page 1

Item ID: D205-634-041 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH
 Start Date: 5/4/2016 Start Qty: 1.00 *1* Cust Item ID:
 Required Date: 5/12/2016 Req'd Qty: 1.00 *1* Customer:
 Reference:

Approvals: Process Plan: SU Date: 20160503 Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2580-041	G

100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG005								

DAS
28
9-89

MAY 17 2016

110	BENDING MACHINE - SKIDTUBES	0.10							
110									
CNC Bend 1	Memo	0.40							
CNC Delta 100 Bender	1-Bend as per program D2580.C on CNC Bender and Folio 16								
	2-Cut tubes as per Dwg. D2580								
	3- scribe batch# in aft end of tube								

> DP

16-5-12

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

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Page 2

Item ID: D205-634-041

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N900040100Setup Start ***NS1***

Revision ID:

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Start Date: 5/4/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 5/12/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120

0.00

120

Skidtubes

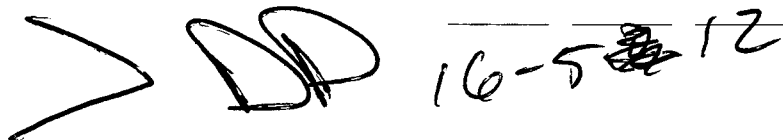
Skidtubes

Memo

1.26

1- Deburr ends and remove bending marks

2- Prepare tube for welding as per QSI 004



130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Quality Control

Memo

0.02

DAS
18
9-09

DQA: _____ Date: _____



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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

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Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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140

0.00

140

1.53

Skidtubes

Memo1-Weld step D2576 as per Dwg. D2580 and QSI004
A/R Aluminum Rod *m13442*

2-Grind welds on step as per Dwg D2580

3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimension.

4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web. Debur

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Debur

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Debur

8-Drill holes for electric step adaption kit using DT8393-1/2/3 as per D412-673

*78616-05-12**DP 16-5-12*

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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OTHER : ☐																									

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Item ID: D205-634-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH
Start Date: 5/4/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/12/2016 Req'd Qty: 1.00 ***1*** Customer:
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC10- Inspect visual per QSI004- ground welds	0.00							
150									
QC	Memo	0.00							
Quality Control									
160	QC5- Inspect part completeness to step on W/O	0.00							
160									
QC	Memo	0.02							
Quality Control									
170	Pressure Wash per QSI005 4.3	0.00							
170									
HandFinish	Memo	0.52							
Hand Finishing	Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.								
	Place bushing D3620-1 2 places, apply sikaflex M								
	Install D2913 Doubler along with hardware per D412-673								

16-5-12 JK

133824

16106

16-05-12 PD

16-05-12 PD

16-05-12

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coor. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
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								Lead hand / Supervisor Approval Verification	
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Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
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Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
180	<i>M 134631.</i>					<i>1</i>	<i>Ø</i>	<i>16-05-13</i>	<i>25</i>
Powdercoat	Memo	0.31							
Powder Coating	START TIME: <i>9:05</i>								
	OVEN TEMPERATURE: <i>320°</i>								
	FINISH TIME: <i>9:35</i>								
190	QC3- Inspect Part Finish	0.00							
190									
QC	Memo	0.01							
Quality Control									

DAS
15

1 x d 20 16/05/13

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
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200

200

HandFinish

Hand Finishing

1.56

Memo

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R Sikaflex-291 M134497
 Sikaflex expire date: 16/12

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580 RTU 548 M134520 16/07

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R Sikaflex-291 M134487
 Sikaflex expire date: 16/12

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: M134497

1 x of JEL 16/05/16

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N900040100

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Run Start *NR1*

Stop *NR2*

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210	QC5- Inspect part completeness to step on W/O	0.00				1			DAS 38 9-89
210									
QC	Memo	0.02							
Quality Control	Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024								MAY 17 2016
220	Packaging	0.00				1x			DAS 28 9-89
220									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPPD205-634-041								MAY 17 2016
	Location:								
	PPP Rev: 144797								
230	QC21- Final Inspection - Work Order Release	0.00							
230									
QC	Memo	0.10							
Quality Control									MAY 17 2016

SH 16/5/17

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong				
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions				
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance				
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect				
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing				
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved				
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing				
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish				
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread				
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence				
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____							
Misidentified ☐	☐ Past Due								

Picklist Print

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Page 1

Work Order ID: 145189

145189

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30
KJ IPP Rev P 10.02.19
per PAR09-043 EC verified by:DD
IPP Rev. O 06.02.28 Added paperwork EC
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q
10.12.01 as per chg003 DD verf:EC IPP REV:R 12.01.23 AS
PER ECN11-684 VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

ALS7-1032-130

AELS8-1032-130

Purchased

No

Each

1,328.000

4

ALS7-1032-130

**

Rivnut

Location

Loc Qty

Loc Code

FG

50

M128649

50

FP001

43

M128649

43

st549

1235

M128649

1235

AN310-6

Purchased

No

Each

30.0000

2

AN310-6

**

Castellated Nut

Location

Loc Qty

Loc Code

ST331

30

114523

10

122459

20

Picklist Print

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Page 2

Work Order ID: 145189

145189

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

AN6-53

AN6-53

Bolt

Purchased

No

Each

7.0000

2

**

Location

Loc Qty

Loc Code

ST332

7

105289

3

M128773

4

Each

39.0000

6

**

AN960JD10L

AN960JD10L

Washer

NAS1149D0332J

Purchased

No

Location

Loc Qty

Loc Code

CA

39

M129682

39

Each

0.0000

4

**

AN960JD616

AN960JD616

Washer

NAS1149D0663J

Purchased

No

Manufactured

No

Each

20.0000

1

**

D2913

Doubler

Location

Loc Qty

Loc Code

ST013

20

106605

20

Each

11.0000

4

**

D3620-1

D3620-1

Bushing

Location

Loc Qty

Loc Code

Mezz

11

35001

11

Picklist Print

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Page 3

Work Order ID: 145189

145189

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

MS21042L3

MS21042L3

Nut

Purchased No

Each

1,794.000

2

Location

Loc Qty

Loc Code

FP001

100

m133790

100

GA

701

m133790

3

m134360

698

ST303

993

m134039

12

m134360

381

m134634

600

MS24665-300

MS24665-300

COTTER PIN

Purchased No

Each

30.0000

2

Location

Loc Qty

Loc Code

GA

30

118234

30

Each

184.0000

2

Location

Loc Qty

Loc Code

ST292

184

m130799

184

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Page 4

Work Order ID: 145189

145189

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-08

MS27039-1-08

Screw

Purchased

No

Each

269.0000

2

Location

Loc Qty

Loc Code

FP001

83

m128636

83

GA

73

125654

2

m128636

71

ST281

113

m134502

113

Each

183.0000

2

Location

Loc Qty

Loc Code

GA

20

125654

13

9662

7

ST280

163

124326

163

Each

25.0000

2

Location

Loc Qty

Loc Code

ST269

25

m127306

25

MS27039-1-11

MS27039-1-11

Screw

Purchased

No

Each

183.0000

2

Location

Loc Qty

Loc Code

GA

20

125654

13

9662

7

ST280

163

124326

163

Each

25.0000

2

Location

Loc Qty

Loc Code

ST269

25

m127306

25

MS35489-35

MS35489-35

Grommet

Purchased

No

Each

25.0000

2

Location

Loc Qty

Loc Code

ST269

25

m127306

25

Picklist Print

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Page 5

Work Order ID: 145189

145189

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

D4202-1

Manufactured No

140

Each

368.0000

20

**

D4202-1

Spacer

Location

Loc Qty

Loc Code

LG001

368

141708

368

Manufactured No

110

Each

0.0000

**

D2580-1

D2580-1

205 Bent Tube

D2576-3

Manufactured No

140

Each

16.0000

1

1

**

D2576-3

Step (Machining Detail)

Location

Loc Qty

Loc Code

LG001

16

136730

1

142485

15

Manufactured No

200

Each

45.0000

1

1

**

D2855

D2855

Cap

Location

Loc Qty

Loc Code

FP001

45

134027

17

137568

28

Picklist Print

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Page 6

Work Order ID: 145189

145189

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

AN3-5A

Purchased

No

200

Each

326.0000

2

2

AN3-5A

Bolt

**

HL 16/05/16

Location

Loc Qty

Loc Code

FP001

26

m133686

2

m134055

24

✓ 2

ST350

300

m134502

300

NAS1149D0332J

Purchased

No

200

Each

1,186.000

2

2

NAS1149D0332.J

Washer

**

HL 16/05/16

Location

Loc Qty

Loc Code

CA

6

m129682

6

FP001

26

m133988

26

✓ 2

GA

60

m132677

60

ST260a

1000

m134502

1000

ST264

94

m133988

94

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Work Order ID: 145189

145189

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130

AELS8-1032-130

Purchased

No

200

Each

1,328.000

50

50

ALS7-1032-130

Rivnut

16105/11

ALS4-1032-130

Location

Loc Qty

Loc Code

FG

50

M128649

50

M134502

X50

FP001

43

M128649

43

st549

1235

M128649

1235

AN3C4A

Purchased

No

200

Each

955.0000

50

50

AN3C4A

Bolt

16105/16

Location

Loc Qty

Loc Code

FG

20

122814

20

FP001

323

M133440

7

M134396

41

M134509

246

M134606

29

X50

OVER002

500

M134502

200

M134676

300

ST350

112

M134134

18

M134396

94

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Page 8

Work Order ID: 145189

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

145189

D205-634-041

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0332R

Purchased

No

200

Each

3,103.000

50

50

NAS1149C0332R

WASHER

Handwritten: 16/05/16

Location

Loc Qty

Loc Code

FP001

1582

m132262

4

m132930

1004

m134063

446

m134073

128

Handwritten: X 50

GA

225

m133284

225

ST266

1296

m134474

196

m134574

1000

m134654

100

D3566-13

Manufactured

No

200

Each

32.0000

1

1

D3566-13

Gasket Fwd

Handwritten: 16/05/16

Location

Loc Qty

Loc Code

FG

2

98908

2

FP001

30

138858

2

144947

28

Handwritten: X 1

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Picklist Print

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Work Order ID: 145189

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

145189

D205-634-041

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

D3566-5

Manufactured No

200

Each

31.0000

1

1

D3566-5

Gasket Center Aft

**

16/05/16

Location

Loc Qty

Loc Code

FG

2

139236

2

FP001

29

140942

3

144273

26

X1

D3566-1

Manufactured No

200

Each

34.0000

2

2

D3566-1

Gasket Aft / Fwd

**

16/05/16

Location

Loc Qty

Loc Code

FG

8

117012

4

139221

4

FP001

26

139221

4

140819

1

142848

21

X2

D3564-11

Manufactured No

200

Each

8.0000

1

1

D3564-11

Wearplate Aft

**

16/03/13

Location

Loc Qty

Loc Code

FG

4

77056

4

FP002

4

144203

4

X1

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Page 10

Work Order ID: 145189

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

145189***D205-634-041***

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

D3564-13

D3564-13

Wearpad Fwd

Manufactured No 200 Each 3.0000 1 1

**

ll 16/05/16

LocationLoc QtyLoc Code

FG

2

B144946

89044

2

xl

FP001

1

137738

1

Manufactured No 200 Each 14.0000 1 1

**

ll 16/05/16

LocationLoc QtyLoc Code

FG

6

76950

4

88407

2

FP002

8

142431

8

xl

Manufactured No 200 Each 28.0000 1 1

**

ll 16/05/16

LocationLoc QtyLoc Code

FG

3

34806

1

89048

2

FP002

25

144896

25

xl

D3564-5

D3564-5

Wearplate Center

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Work Order ID: 145189

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

145189

D205-634-041

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

D2594-3

Manufactured No 200 Each 474.0000 16 16

D2594-3

O-Ring

**

lll 16/05/16

Location

Loc Qty

Loc Code

FP001

474

134838

116

135859

24

✓ 137829 ✗

30

138060

2

140770

2

141703

300

x16

2

D2594-1

Manufactured No 200 Each 171.0000 16 16

D2594-1

Plug

**

lll 16/05/16

Location

Loc Qty

Loc Code

FP001

171

119830

68

134804

16

135914

13

141080

14

142475 ✗

28

42807

25

88922

7

x16

4

LIST OF MATERIALS						
ITEM	QTY -041	QTY -045	QTY -047	QTY -049	PART NUMBER	DESCRIPTION
1	X				D2580-041	SKIDTUBE ASSEMBLY
2		X			D2580-045	SKIDTUBE ASSEMBLY
3			X		D2580-047	SKIDTUBE ASSEMBLY
4				X	D2580-049	SKIDTUBE ASSEMBLY
20	1	1	1	1	D2500-1-190	EXTRUSION
21			16	16	D2570	BUSHING
22	1	1	1	1	D2576-3	STEP
23		4			D2579	SPACER
24	16	16	8	8	D2594-1	PLUG
25	16	16	8	8	D2594-3	O-RING
26	1	1	1	1	D2596	205 WEB
27	1	1	1	1	D2855	AFT CAP
28	1	1			D3564-5	WEARSHOE
29	1	1			D3564-9	WEARSHOE
30	1	1			D3564-11	WEARSHOE
31	1	1			D3564-13	WEARSHOE
32	2	2			D3566-1	GASKET
33	1	1			D3566-5	GASKET
34	1	1			D3566-13	GASKET
35	20	20	24	24	D4202-1	SPACER
36			1		D4406-041	WEARPLATE ASSEMBLY
37			1		D4406-043	WEARPLATE ASSEMBLY
37				1	D5061-1	FWD WEARPLATE
37				1	D5061-3	AFT WEARPLATE
50	50	50			ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
51	50	50			AN3C4A	BOLT
52	2	2	2	2	AN3-SA	BOLT
53			8	8	AN4-45A	BOLT
54	50	50			NAS1149C0332R	WASHER (AN960C10L)
55	2	2	2	2	NAS1149D0332J	WASHER (AN960D10L)
56			8	8	MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

- MATERIAL: N/A
- FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY (-041/-047/-049) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3 POWDER COAT ASSEMBLY (-045) GREEN SANDEX (REF 4.3.5.8) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: NONE
- WEIGHT: D2580-041 = 34.5 lbs
D2580-045 = 34.5 lbs
D2580-047 = 45.1 lbs
D2580-049 = 32.0 lbs
- WELDING PER DART QSI 004.
- INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 80 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/-291.
- INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047/-049)
- IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

20160503
SA 145190

RELEASED
2014-04-29

G	ADDED -049, -047 WEIGHT UPDATED PER DSI 9598	AJS	14.04.09
F	INCORPORATE DEO D2580-E-1 PER PAR12-218	DC	13.06.20
E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	AP	DRAWING NO.	REV. G
MFG. APPR.	DS	D2580	SHEET 1 OF 9
APPROVED	MA	TITLE	SCALE
DE APPR.	SA	205 SKIDTUBE ASSEMBLY	NTS
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2014-04-29

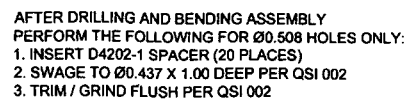
C7-2



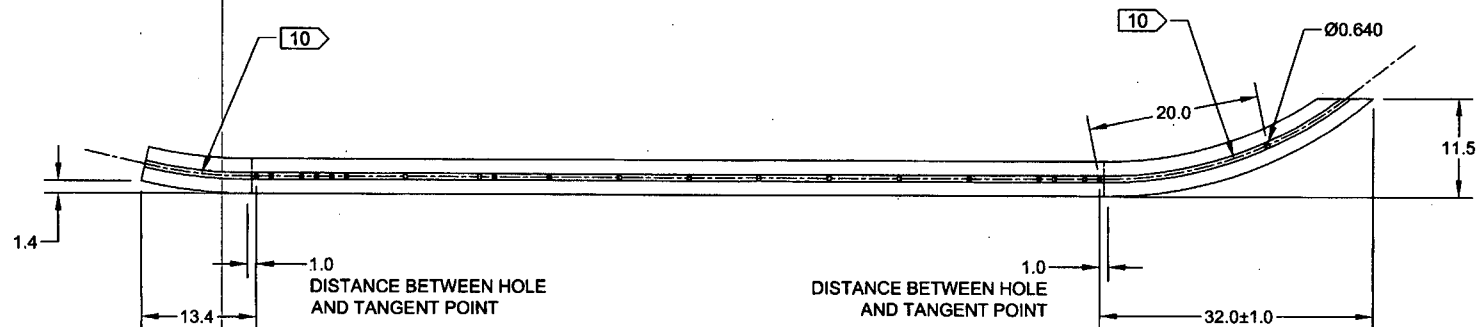
SECTION B-B
SCALE 5X



DETAIL C D3-2
SCALE 5X



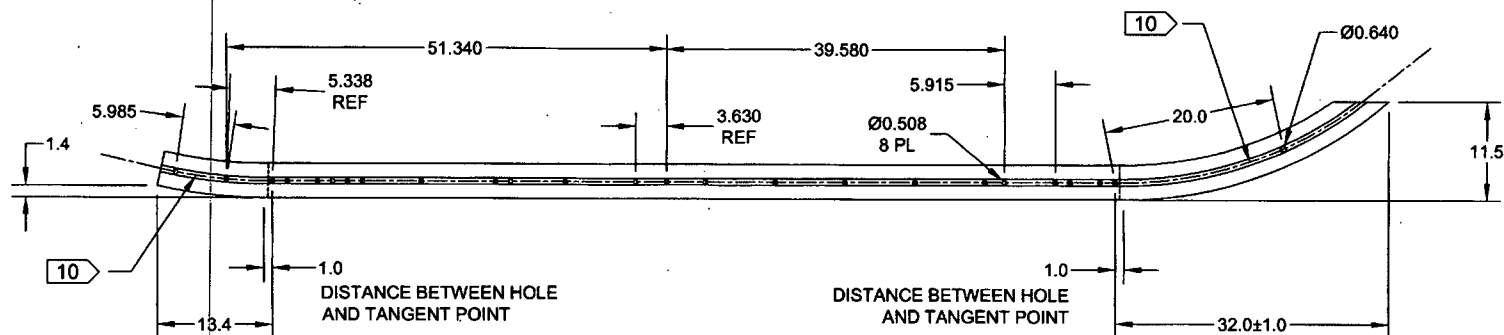
DESIGN	DS	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>AP</i>	DRAWING NO.	REV. G
MFG. APPR.	<i>AP</i>	D2580	SHEET 2 OF 9
APPROVED	<i>AP</i>	TITLE	SCALE
DE APPR.	<i>AP</i>	205 SKIDTUBE ASSEMBLY	NTS
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D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2014-04-29

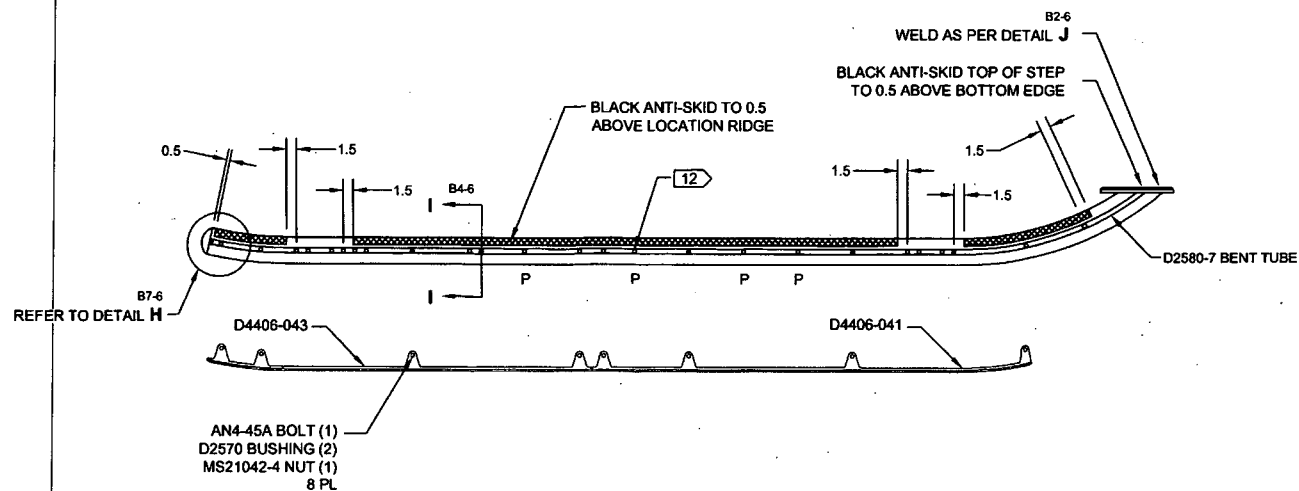
DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	A.P.	DRAWING NO.	REV. G
MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 3 OF 9
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
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D2580-5 BENT TUBE
(MAKE FROM D2580-101 TUBE)

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2014-04-29

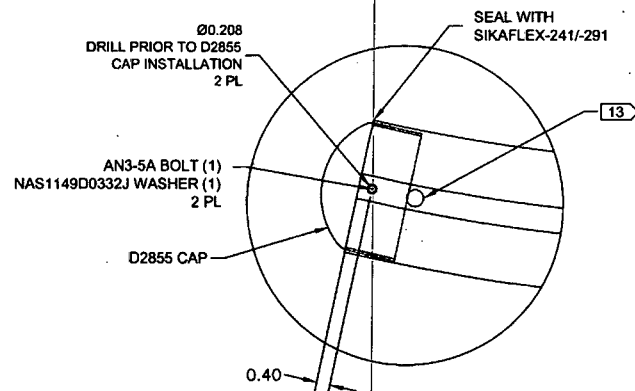
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MFG. APPR.		D2580	SHEET 5 OF 9
APPROVED		TITLE	SCALE
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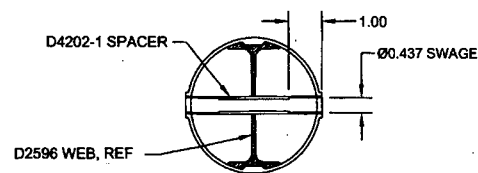
D2580-047 ASSEMBLY DETAIL

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DETAIL H
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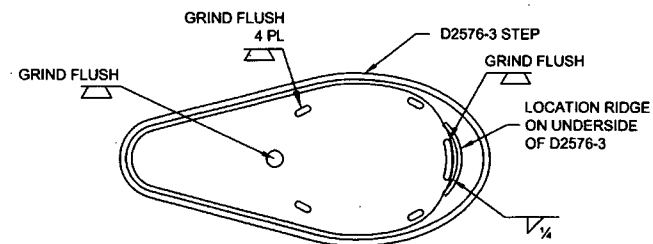


SECTION I-I
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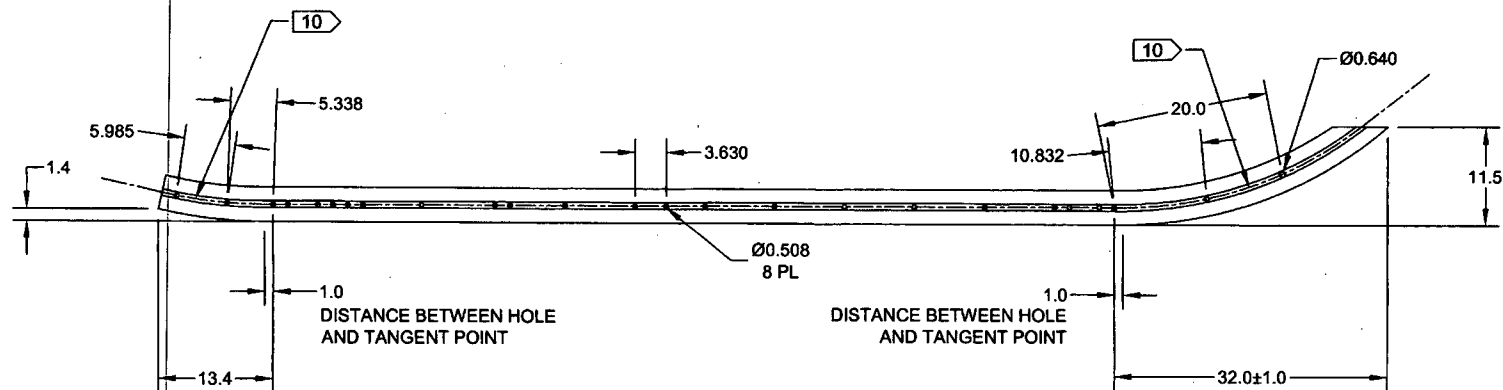


AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (24 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM/GRIND FLUSH PER QSI 002

DETAIL J
SCALE 5X



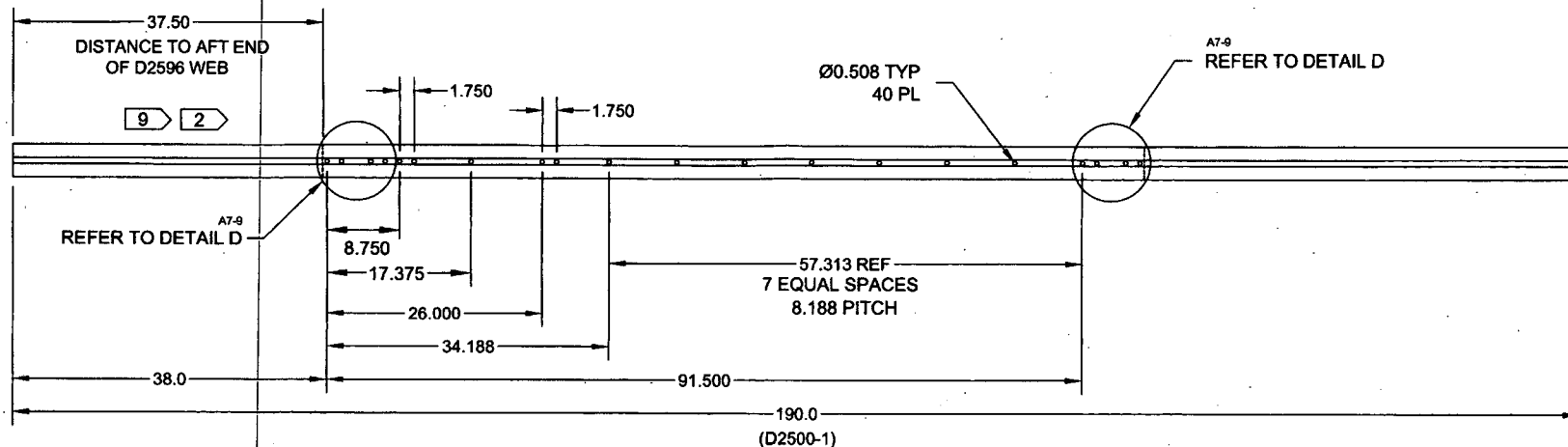
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MFG. APPR.	A.P.	D2580	SHEET 6 OF 9
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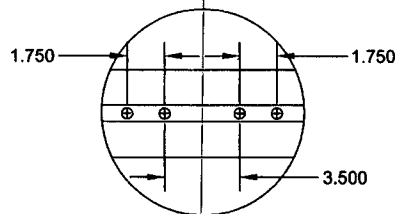
D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)

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ND

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D2580-101 TUBE



DETAIL D
SCALE 5X
C3-9
C7-9

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2014-04-29
WMD

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CHECKED	<i>A.P.</i>	DRAWING NO.	REV. G
MFG. APPR.	<i>MA</i>	D2580	SHEET 9 OF 9
APPROVED	<i>WMP</i>	TITLE	SCALE
DE APPR.	<i>WMP</i>	205 SKIDTUBE ASSEMBLY	NTS
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DART

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<http://www.dartaero.com>

INSTALLATION INSTRUCTIONS

D412-673

Electric Step Adaptation Kit

BELL 212 / 412 MODELS

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: *D. Shepherd*
D. SHEPHERD (DE # 02)

DATE: 08.04.23
CERT. NO.: SH96-88
ISSUE NO.: 3

Prepared By: _____

P. Hum
P. Hum
Mechanical Designer

Checked By: _____

M. Bellavance
M. Bellavance
Mechanical Designer

Released By: _____

D. Shepherd
D. Shepherd, P. Eng.
DE # 02

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Revision: **C**
Date: 08.04.23

Revision Record

Revision	Issue Date	Description
A	99.09.16	New Issue
B	07.08.10	Update format; Simplify, reorganize installation procedure; Incorporate DSI 9374
C	08.04.23	Revise Table 3 and 4 for inboard orientation.

1.0 INTRODUCTION

These instructions cover the installation of the Dart D412-673-011 Electric Step Adaptation Kit, which modifies the Dart D205-634-011 Skidtube Kit to allow for the installation of the BHT 212-706-105-003 (or similar) Power Step Kit on either the LH or RH skidtube. The BHT Power Step Kit is installed per the Aircraft Maintenance Manual and is compatible with the Dart D205-665-015 Cable Guard. **Figure 1.1** shows the standard installation of the BHT Power Step Kit on the Dart D205-634-011 Skidtube Kit and **Figure 1.2** shows the installation of the BHT Power Step Kit on the Dart D205-634-011 Skidtube Kit with the D205-665-015 Cable Guard installed. The components in the Dart kits are as defined in Section 6.0 of these instructions.

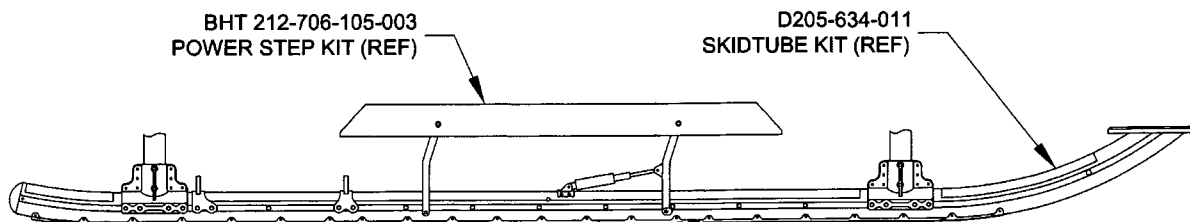


Figure 1.1 – BHT Power Step Kit Installed on the Standard Dart D205-634-011 Skidtube

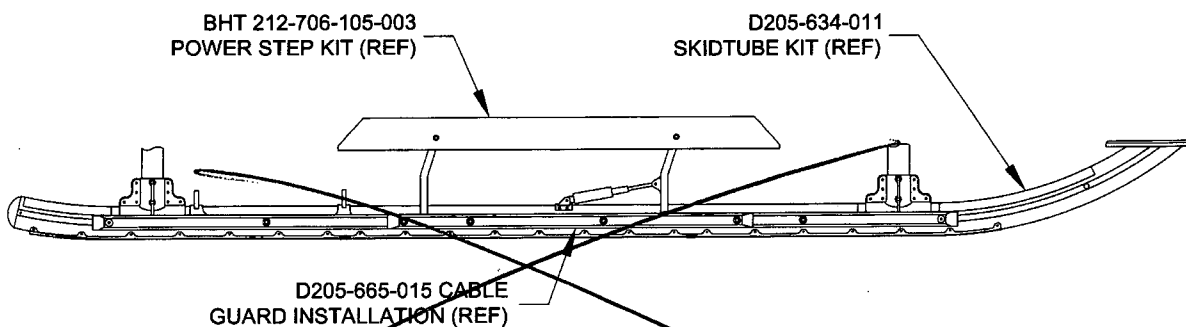


Figure 1.2 – BHT Power Step Kit Installed on the Dart D205-634-011 Skidtube With the D205-665-015 Cable Guard Installed

2.0 GENERAL NOTES

COMPATIBILITY

Compatibility of this installation with the aircraft is the **responsibility of the installer**. Ensure that this installation does not conflict with a previous modification.

WORKMANSHIP

Unless otherwise stated, all workmanship should be to the standards set by the Aircraft Maintenance Manual. It is acceptable to use longer or shorter bolts or screws in order to ensure 1.5-4 threads in safety for all fasteners. All holes should be de-burred and touched up with zinc chromate primer after drilling.

3.0 TOOLS

The DT8393-1/-2/-3 tools that are shipped with the kit are used for transfer marking and drilling the holes used to adapt the Dart skidtube for installation of the BHT Power Step Kit and must be returned to Dart once the installation has been performed. Note that tool DT8393-1 is always used on the LH side of the skidtube and tool DT8393-2 is always used on the RH side of the skidtube. The arrows on the face of the tools should always point forward.

4.0 INSTALLATION PROCEDURE

4.1 Preparation

- 4.1.1 If the skidtube is already installed and in service, remove the skidtube from the aircraft in accordance with ICA-D205-634.
- 4.1.2 Temporarily remove the forward D2571 and D2572 Saddles and any D2594 Plugs from the skidtube that will interfere with installation of the DT8393-1/-2/-3 tools.
- 4.1.3 Check for corrosion and mechanical damage of the skidtube in accordance with ICA-D205-634 and repair/replace as required.
- 4.1.4 The D412-673-011 Electric Step Adaptation Kit can be installed on either the LH or RH skidtube of the aircraft and can also be made compatible with the Dart D205-665-015 Cable Guard Kit.
 - a) For the standard installation of the D412-673-011 Electric Step Adaptation Kit on the LH and/or RH skidtube, follow the installation procedure provided in Section 4.2. For standard installations, the step will be angled outboard.
 - b) For installation of the ~~D412-673-011 Electric Step Adaptation Kit compatible with the Dart D205-665-015 Cable Guard Kit on the LH and/or RH skidtube~~, follow the installation procedure provided in Section 4.3. When the power step is made to be compatible with the D205-665-015 Cable Guard Kit, the step will be angled inboard.

4.2 Standard Installation of the D412-673-011 Electric Step Adaptation Kit

Refer to **Figure 4.1, Views A-A and B-B** and **Sections C-C** through **H-H**

4.2.1 For installation of the D412-673-011 kit on the LH skidtube, follow the steps below and refer to **Table 1** for each of the STA lines indicated in **Table 1**. For installation of the D412-673-011 kit on the RH skidtube, follow the steps below and refer to **Table 2** for each of the STA lines indicated in **Table 2**.

- Position the DT8393-1 tool on the LH side of the skidtube and DT8393-2 on the RH side of the skidtube as shown in **Views A-A and B-B** at the STA-line-indicated **Table 1/2**.
- Install the DT8393-3 Pins in the pin holes indicated in **Table 1/2** as shown in **Section C-C**. Note that the pin holes should align with existing holes in the skidtube.
- Transfer mark the holes indicated in **Table 1/2** from the DT8393-1 and DT8393-2 tools onto the skidtube.
- Remove the tools. Double check the hole locations per **Figure 4.1**.
- Re-install the tools and drill $\varnothing 0.188"$ (4.80 mm) pilot holes at the marked locations.
Note: Before drilling the holes at STA 128.3, mark the holes on the skidtube and test fit the BHT 212-706-105-003 Power Step Kit on the skidtube in the retracted and extended positions without securing the aft arm of the step to the skidtube. Ensure the holes in the aft arm align with the marked holes on the skidtube. If the holes do not align, mark the correct longitudinal position of the aft arms on the skidtube, reposition the DT8393-1/-2 tools on the skidtube so that holes listed in **Table 1/2** for STA 128.3 align with the new longitudinal positions, transfer mark the new hole locations and proceed to drill the skidtube.
- Enlarge the holes to the finish hole size listed in **Table 1/2**. Note that the tolerance on all holes is $\begin{matrix} +0.006" & +0.15mm \\ -0.000" & (-0.00mm) \end{matrix}$.
- Deburr the holes and touch up with zinc chromate primer.
- Install the hardware indicated in **Table 1/2** in the drilled holes.

Note: When installing the D3620-1 Bushings at STA 103.7 and 128.3, refer to **Section D-D**.

Table 1 – Standard Installation on the LH Skidtube

STA Lines	Pin Holes	Drill Holes		Pilot Hole Size	Finish Hole Size	Drill Through I-Beam Web	Install
		DT8393-1	DT8393-2				
71.5	B, C	none	17	0.188" (4.80 mm)	0.438" (11.10 mm)	No	MS35489-35 Grommet (1)
103.7	A, D	1	11	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)
111.9	A, D	5, 6	15, 16	0.188" (4.80 mm)	0.297" (7.50 mm)	No	ALS7-1032-130 Insert (4)
		8	none	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	MS35489-35 Grommet (1)
128.3	A, D	3	13	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)

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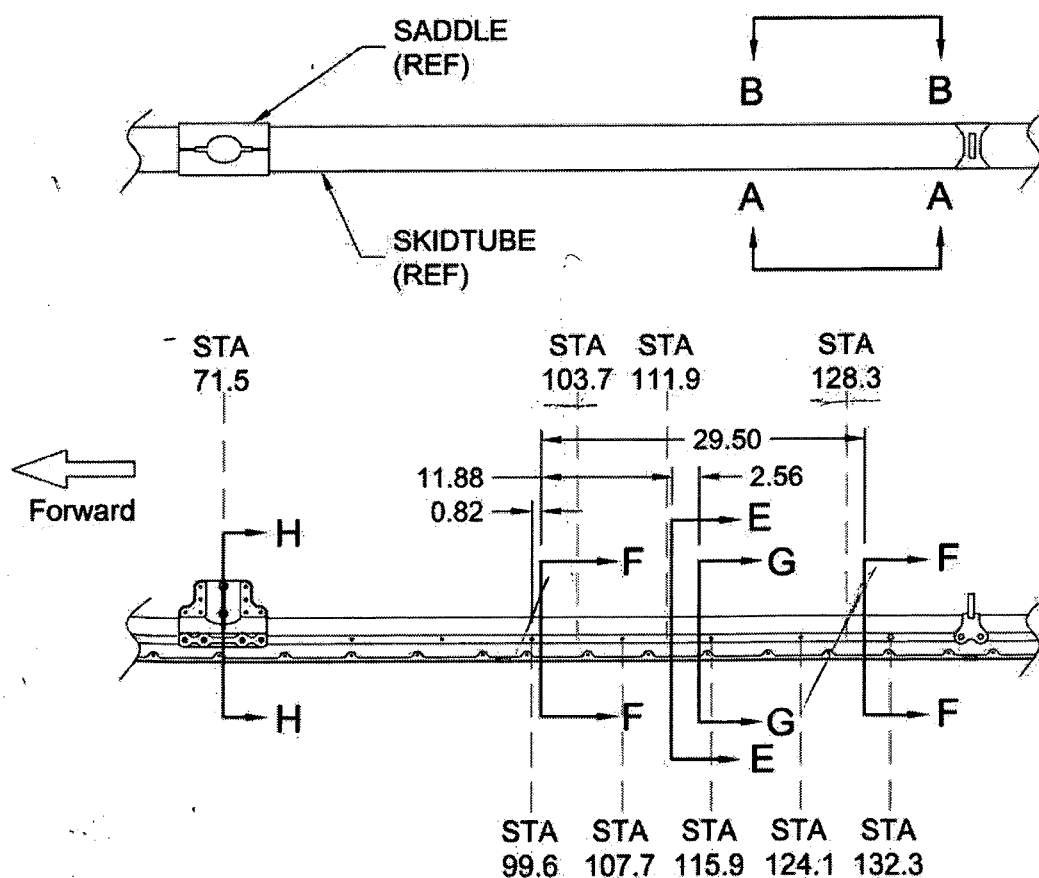
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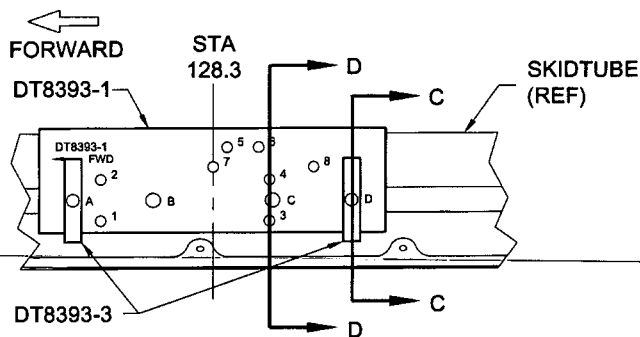
Table 2 – Standard Installation on the RH Skidtube

STA Lines	Pin Holes	Drill Holes		Pilot Hole Size	Finish Hole Size	Drill Through I-Beam Web	Install
		DT8393-1	DT8393-2				
71.5	B, C	7	none	0.188" (4.80 mm)	0.438" (11.10 mm)	No	MS35489-35 Grommet (1)
103.7	A, D	2	12	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)
111.9	A, D	5, 6	15, 16	0.188" (4.80 mm)	0.297" (7.50 mm)	No	ALS7-1032-130 Insert (4)
		none	18	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	MS35489-35 Grommet (1)
128.3	A, D	4	14	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)

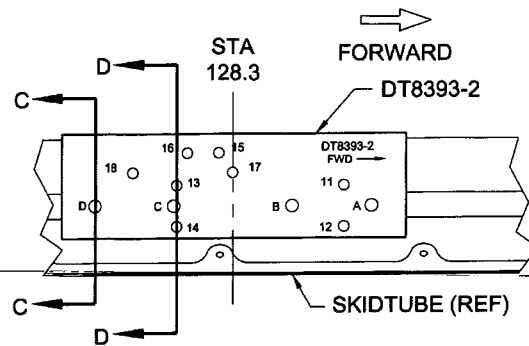
**Figure 4.1 – Applicable STA Lines**

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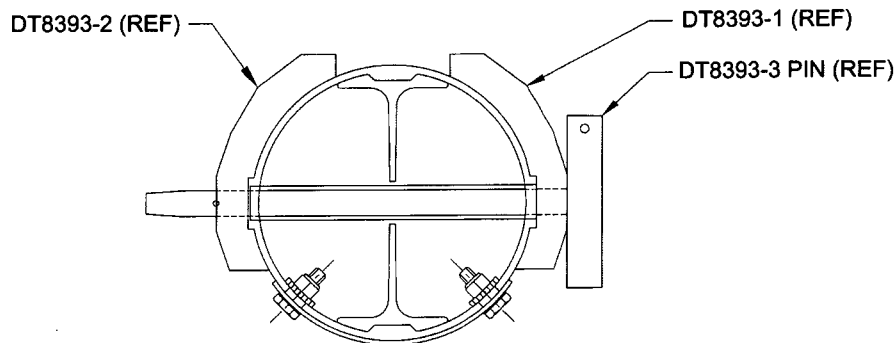
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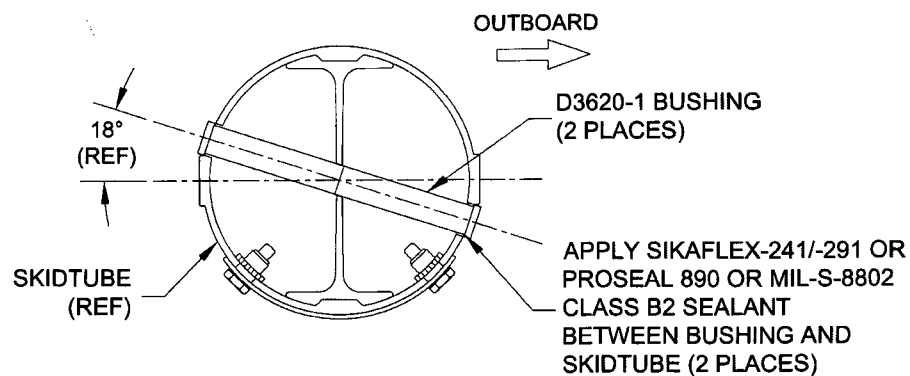
View A-A – Typical DT8393-1 Position
(See Figure 4.1; Tool Alignment at STA 128.3
Shown, Other STA Positions are Similar)



View B-B – Typical DT8393-2 Position
(See Figure 4.1; Tool Alignment at STA 128.3
Shown, Other STA Positions are Similar)

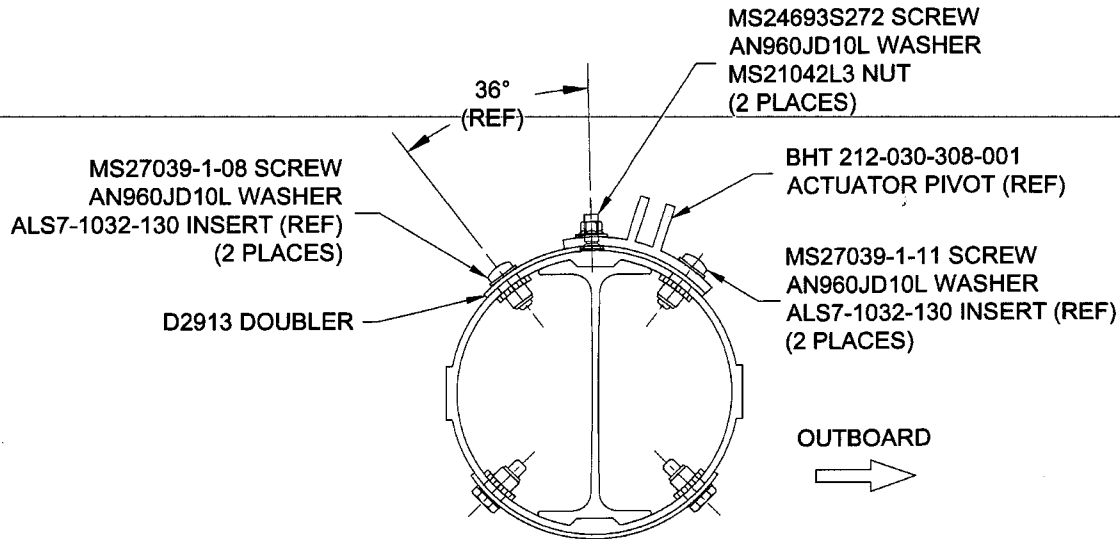


Section C-C – Typical DT8393-3 Pin Position
(See View A-A and B-B)



Section D-D – Bushing Installation
(See View A-A and B-B)

- 4.2.2 a) Install the D2913 Doubler onto the BHT 212-030-308-001 actuator pivot using MS24693 screws as shown in **Section E-E**.
- b) Install the assembly onto the skidtube using MS27039 screws as shown in **Section E-E**. Fasteners should be installed with Sikaflex-241/291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant on final installation.

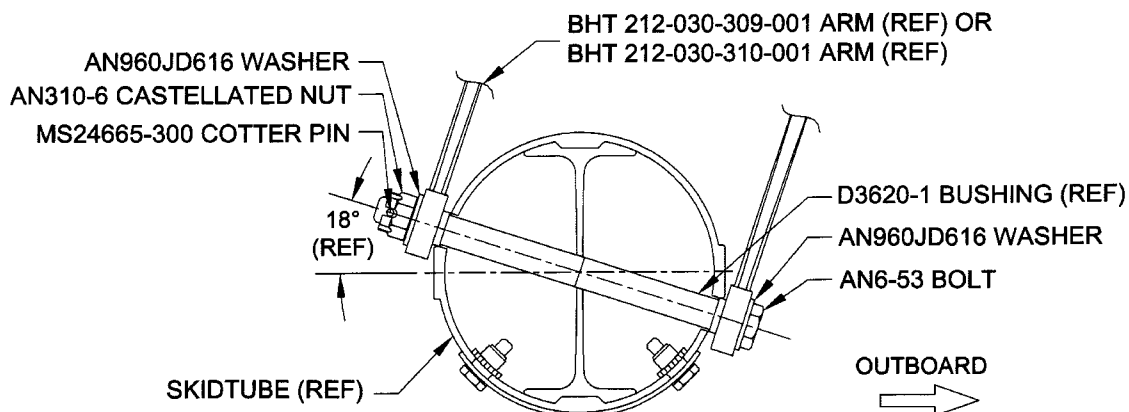


Section E-E – Doubler Installation

(See **Figure 4.1**; Approximately STA 111.9)

(LH Skidtube Installation Shown, RH Skidtube Installation Opposite)

- 4.2.3 Install the electric step arms to the skidtube as shown in **Section F-F**. Note that the step should be installed so that it is angled toward the outboard side of the skidtube as shown in **Section F-F**. Ensure all nuts are installed on the inboard side of the skidtube. It is acceptable to replace the AN6 bolts with longer or shorter AN6 bolts as required and/or install extra AN960JD616 washers under the nut to ensure proper installation of the cotter pin.



Section F-F – Electric Step Arm Installation

(See **Figure 4.1**; Approximately STA 100.4 and 130.0)

(LH Skidtube Installation Shown, RH Skidtube Installation Opposite)

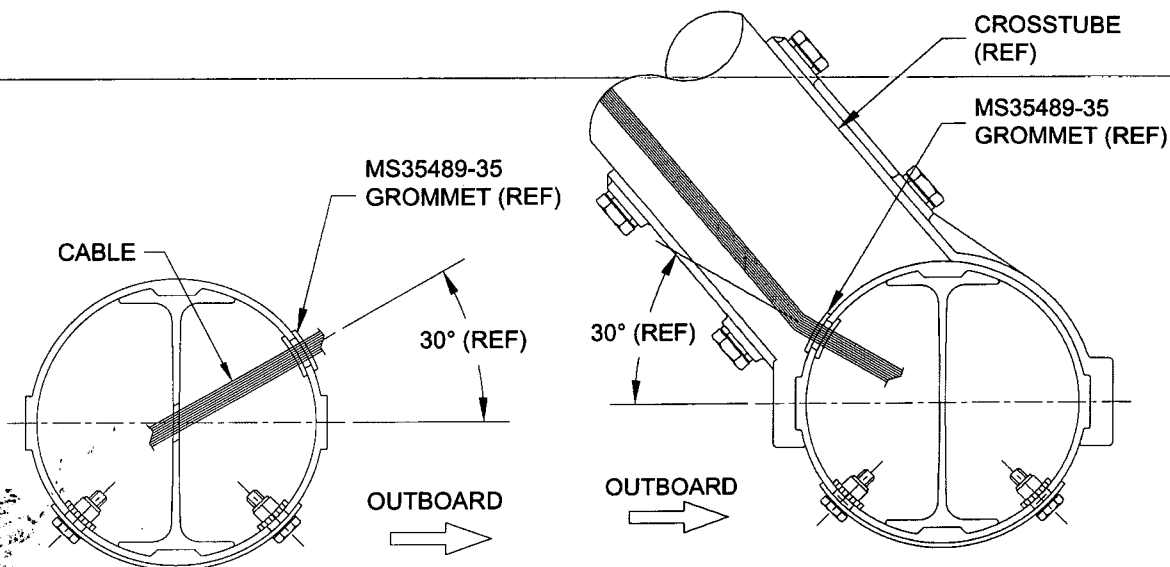
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- 4.2.4 Route the cabling from the step into the skidtube through the skidtube grommet at STA 114.8, through the I-beam web to the inboard side of the skidtube (refer to **Section G-G**), forward to the forward crosstube, out of the skidtube through the skidtube grommet at STA 71.5 and into the forward crosstube (refer to **Section H-H**).



Section G-G – Cable Routing Into Skidtube

(See **Figure 4.1**; Approximately STA 114.8)
(LH Skidtube Installation Shown, RH Skidtube
Installation Opposite)

Section H-H – Cable Routing Out of Skidtube

(See **Figure 4.1**; Approximately STA 71.5)
(LH Skidtube Installation Shown, RH Skidtube
Installation Opposite)

- 4.2.5 Complete the installation of the BHT Power Step Kit per the Aircraft Maintenance Manual.
- 4.2.6 Re-install the forward D2571/D2572 Saddles and D2594 Plugs onto the skidtube assembly, and re-install the skidtube assembly onto the aircraft per ICA-D205-634 (see **Figure 1.1** for the installed step).

4.3 Cable Guard Compatible Installation of the D412-673-011 Electric Step Adaptation Kit

Refer to **Figure 4.2, Views M-M and N-N** and **Sections P-P** through **U-U**

4.3.1 For installation of the D412-673-011 kit on the LH skidtube, follow the steps below and refer to **Table 3** for each of the STA lines indicated in **Table 3**. For installation of the D412-673-011 kit on the RH skidtube, follow the steps below and refer to **Table 4** for each of the STA lines indicated in **Table 4**.

- Position the DT8393-1 tool on the LH side of the skidtube and DT8393-2 on the RH side of the skidtube as shown in **Views M-M and N-N** at the STA line indicated **Table 3/4**.
- Install the DT8393-3 Pins in the pin holes indicated in **Table 3/4** as shown in **Section P-P**. Note that the pin holes should align with existing holes in the skidtube.
- Transfer mark the holes indicated in **Table 3/4** from the DT8393-1 and DT8393-2 tools onto the skidtube.
- Remove the tools. Double check the hole locations per **Figure 4.2**.
- Re-install the tools and drill Ø0.188" (4.80 mm) pilot holes at the marked locations.
Note: Before drilling the holes at STA 128.3, mark the holes on the skidtube and test fit the BHT 212-706-105-003 Power Step Kit on the skidtube in the retracted and extended positions without securing the aft arm of the step to the skidtube. Ensure the holes in the aft arm align with the marked holes on the skidtube. If the holes do not align, mark the correct longitudinal position of the aft arms on the skidtube, reposition the DT8393-1/-2 tools on the skidtube so that holes listed in **Table 3/4** for STA 128.3 align with the new longitudinal positions, transfer mark the new hole locations and proceed to drill the skidtube.
- Enlarge the holes to the finish hole size listed in **Table 3/4**. Note that the tolerance on all holes is $\begin{matrix} +0.006" & (+0.15mm) \\ -0.000" & (-0.00mm) \end{matrix}$.
- Deburr the holes and touch up with zinc chromate primer.
- Install the hardware indicated in **Table 3/4** in the drilled holes.

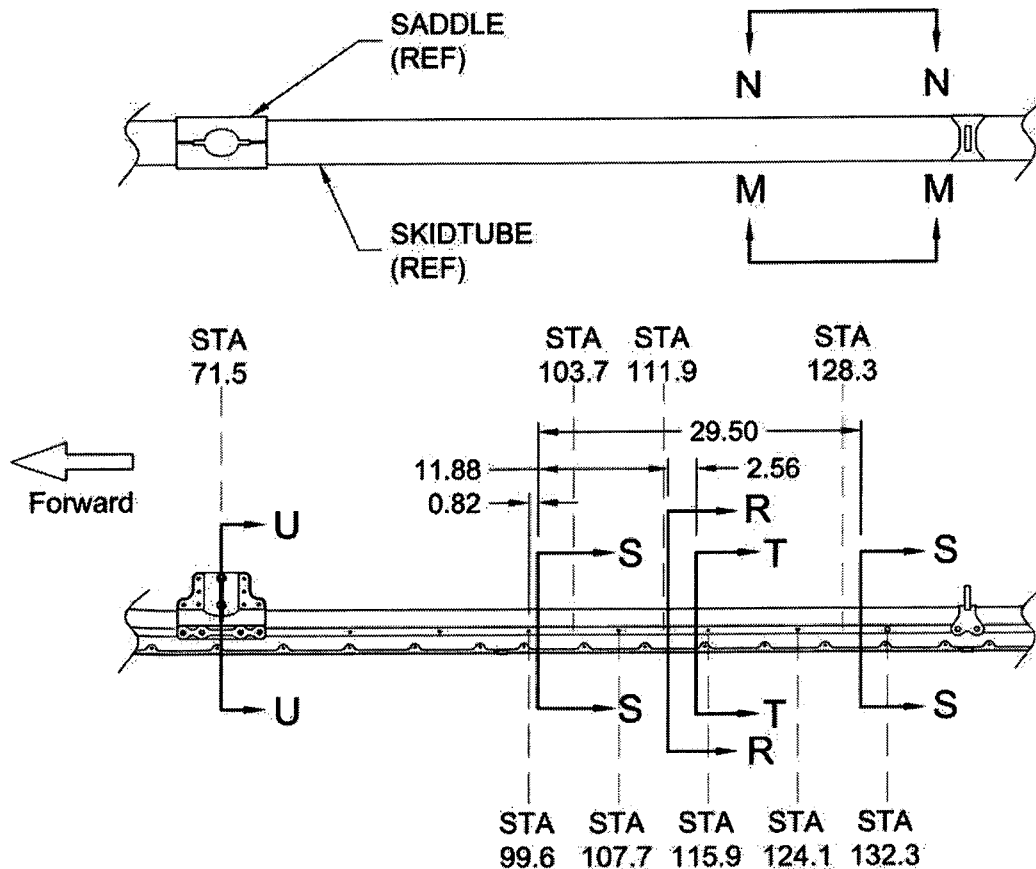
Note: When installing the D3620-1 Bushings at STA 103.7 and 128.3, refer to **Section Q-Q**.

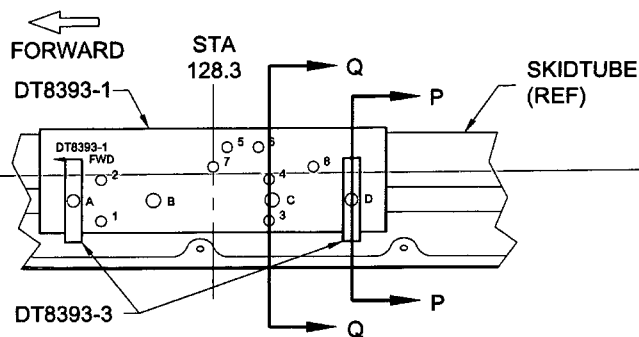
Table 3 – Cable Guard Compatible Installation on the LH Skidtube

STA Lines	Pin Holes	Drill Holes		Pilot Hole Size	Finish Hole Size	Drill Through I-Beam Web	Install
		DT8393-1	DT8393-2				
71.5	B, C	none	17	0.188" (4.80 mm)	0.438" (11.10 mm)	No	MS35489-35 Grommet (1)
103.7	A, D	2	12	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)
111.9	A, D	5, 6	15, 16	0.188" (4.80 mm)	0.297" (7.50 mm)	No	ALS7-1032-130 Insert (4)
		none	18	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	MS35489-35 Grommet (1)
128.3	A, D	4	14	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)

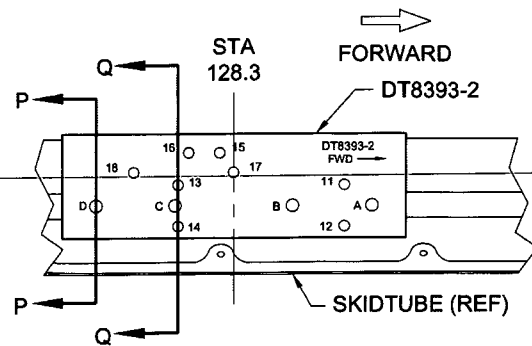
Table 4 – Cable Guard Compatible Installation on the RH Skidtube

STA Lines	Pin Holes	Drill Holes		Pilot Hole Size	Finish Hole Size	Drill Through I-Beam Web	Install
		DT8393-1	DT8393-2				
71.5	B, C	7	none	0.188" (4.80 mm)	0.438" (11.10 mm)	No	MS35489-35 Grommet (1)
103.7	A, D	1	11	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)
111.9	A, D	5, 6	15, 16	0.188" (4.80 mm)	0.297" (7.50 mm)	No	ALS7-1032-130 Insert (4)
		8	None	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	MS35489-35 Grommet (1)
128.3	A, D	3	13	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)

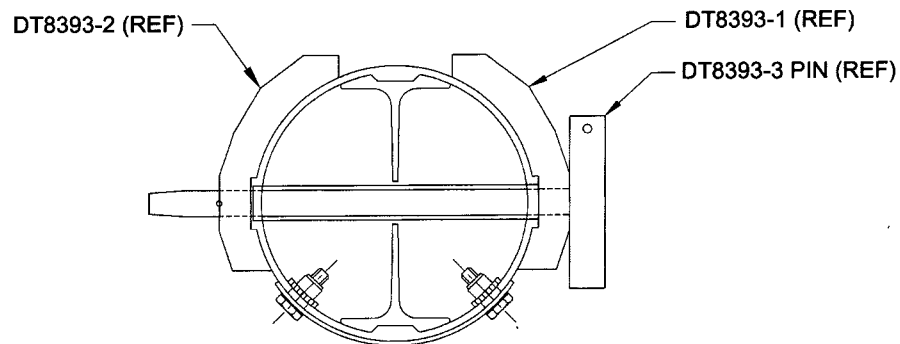
**Figure 4.2 – Applicable STA Lines**
(LH Skidtube Shown, RH Opposite)



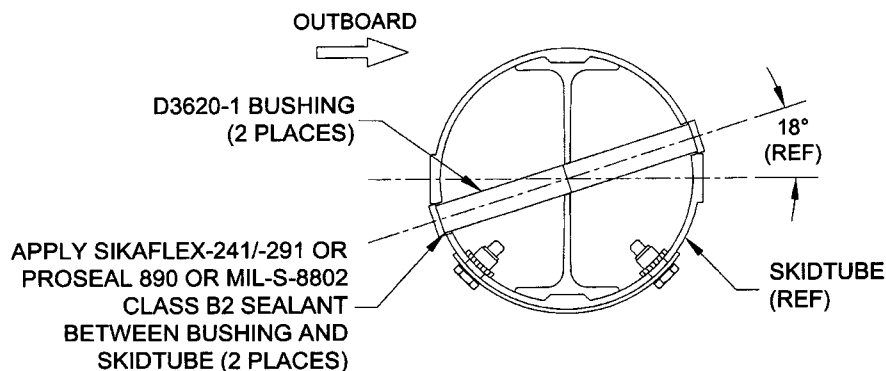
View M-M – Typical DT8393-1 Position
(See Figure 4.2; Tool Alignment at STA 128.3
Shown, Other STA Positions are Similar)



View N-N – Typical DT8393-2 Position
(See Figure 4.2; Tool Alignment at STA 128.3
Shown, Other STA Positions are Similar)

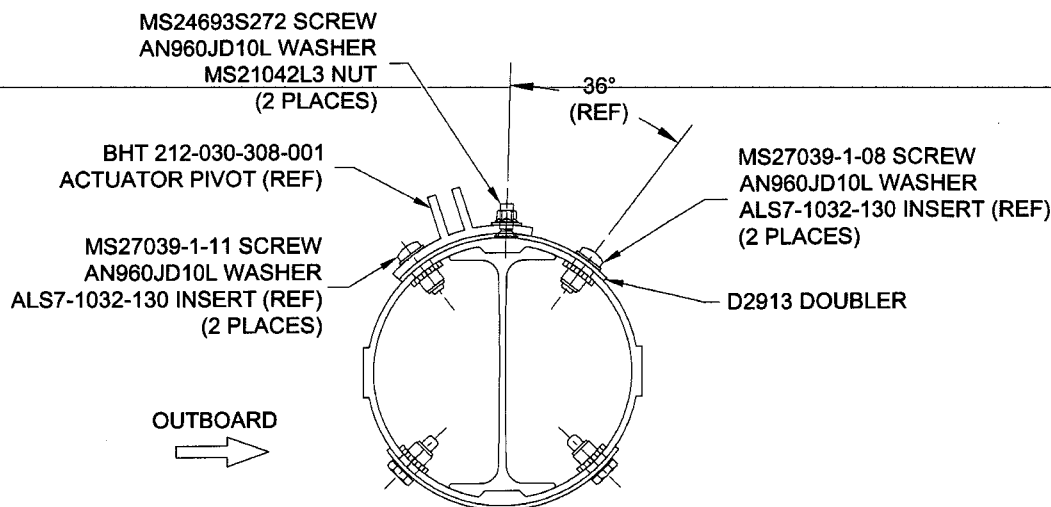


Section P-P – Typical DT8393-3 Pin Position
(See View M-M and N-N)



Section Q-Q – Bushing Installation
(See View M-M and N-N)

- 4.3.2 a) Install the D2913 Doubler onto the BHT 212-030-308-001 actuator pivot using MS24693 screws as shown in **Section R-R**.
- b) Install the assembly onto the skidtube using MS27039 screws as shown in **Section R-R**. Fasteners should be installed with Sikaflex-241/291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant on final installation.

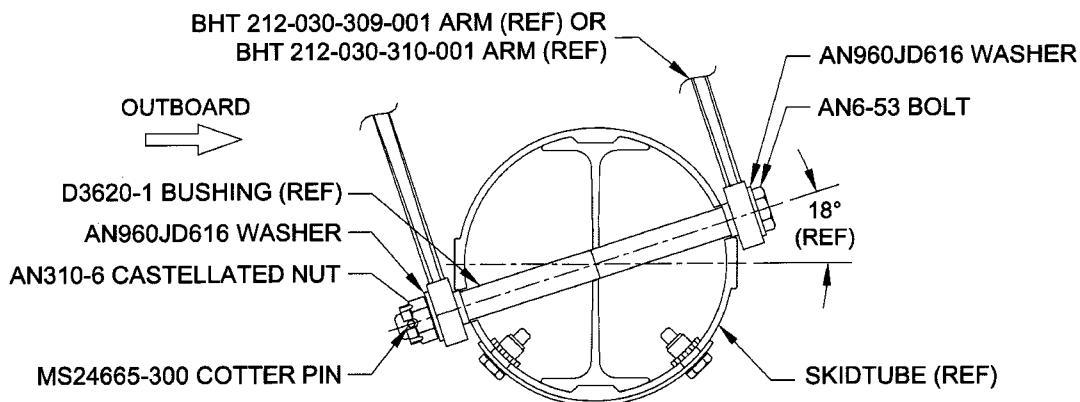


Section R-R – Doubler Installation

(See **Figure 4.2**; Approximately STA 111.9)

(LH Skidtube Installation Shown, RH Skidtube Installation Opposite)

- 4.3.3 Install the electric step arms to the skidtube as shown in **Section S-S**. Note that the step should be installed so that it is angled toward the inboard side of the skidtube as shown in **Section S-S**. Ensure all nuts are installed on the inboard side of the skidtube. It is acceptable to replace the AN6 bolts with longer or shorter AN6 bolts as required and/or install extra AN960JD616 washers under the nut to ensure proper installation of the cotter pin.

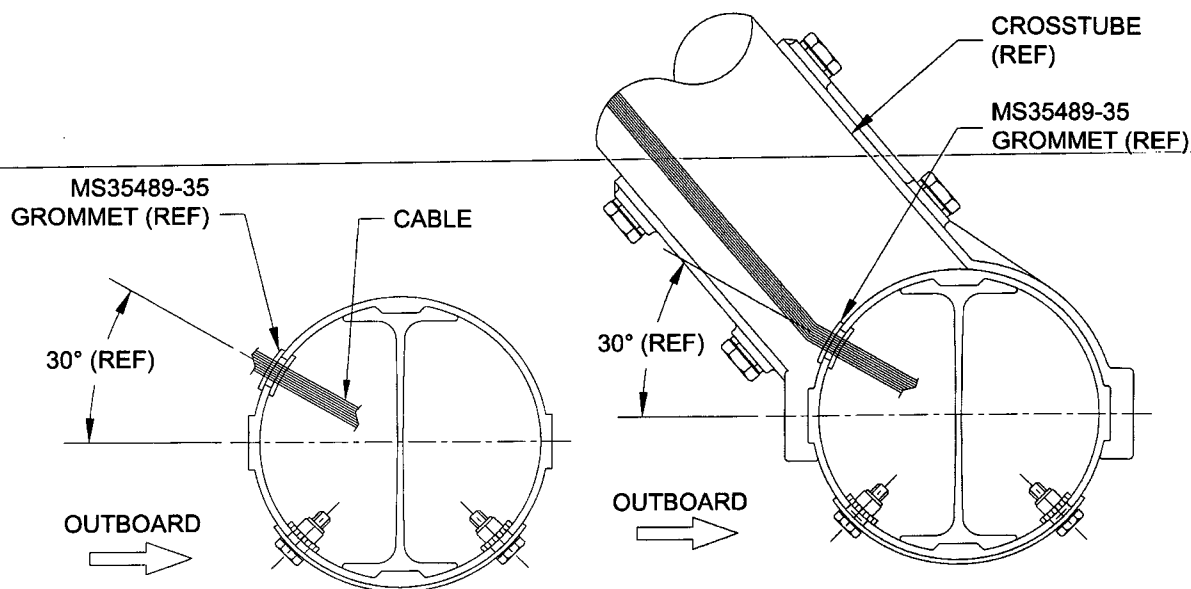


Section S-S – Electric Step Arm Installation

(See **Figure 4.2**; Approximately STA 100.4 and 130.0)

(LH Skidtube Installation Shown, RH Skidtube Installation Opposite)

- 4.3.4 Route the cabling from the step into the skidtube through the skidtube grommet at STA 114.8 (refer to **Section T-T**), forward to the forward crosstube, out of the skidtube through the skidtube grommet at STA 71.5 and into the forward crosstube (refer to **Section U-U**).



Section T-T – Cable Routing Into Skidtube

(See **Figure 4.2**; Approximately STA 114.8)
(LH Skidtube Installation Shown, RH Skidtube
Installation Opposite)

Section U-U – Cable Routing Out of Skidtube

(See **Figure 4.2**; Approximately STA 71.5)
(LH Skidtube Installation Shown, RH Skidtube
Installation Opposite)

- 4.3.5 Complete the installation of the BHT Power Step Kit per the Aircraft Maintenance Manual.
- 4.3.6 Re-install the forward D2571/D2572 Saddles and D2594 Plugs onto the skidtube assembly, and re-install the skidtube assembly onto the aircraft per ICA-D205-634 (see **Figure 1.2** for the installed step).

5.0 WEIGHT AND BALANCE

The weight added to the Skidtube by the D412-673-011 Electric Step Adaptation Kit is negligible.

6.0 PARTS LISTS

Qty -011	Part Number	Description
X	D412-673-011	Electric Step Adaptation Kit
1	D2913	Doubler
4	D3620-1	Bushing
4	ALS7-1032-130	Insert
2	AN6-53	Bolt (or AN6C53)
2	AN310-6	Castellated Nut (or AN310C6)
6	AN960JD10L	Washer
4	AN960JD616	Washer (or AN960C616)
2	MS21042L3	Nut
2	MS24665-300	Cotter Pin (or AN380C3-3)
2	MS24693S272	Screw
2	MS27039-1-08	Screw
2	MS27039-1-11	Screw
2	MS35489-35	Grommet
1*	DT8393-1	Tool
1*	DT8393-2	Tool
2*	DT8393-3	Pin

* Tools listed for reference only. Do not install.

